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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,488	01/28/2002	Satoshi Shigematsu	96790p382	5883

8791 7590 07/13/2006

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

VIEAUX, GARY

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/059,488	Applicant(s) SHIGEMATSU ET AL.	
	Examiner Gary C. Vieaux	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims 1 - 20

- 4) ☒ Claim(s) 1-4, 11, 17 and 18 is/are pending in the application.
 4a) Of the above claim(s) 5-10, 12-16, 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Prosecution

In response to the Restriction Requirement of October 4, 2005, election was
5 made in relation to the first species as shown in Figures 1 and 2A-2C, and as applied to
by claims 1-4, 11, 17, and 18. Because applicant did not distinctly and specifically
point out supposed errors in the restriction requirement, the election has been treated
as an election without traverse (MPEP §818.03(a)).

A Non-final Office Action was issued on February 10, 2006. In response to this
10 Office Action, an Amendment was filed on May 12, 2006, in which claims 1-4, 11, and
17, as well the abstract, were amended. Claims 5-10, 12-16, 19, and 20 have been
withdrawn from consideration.

Response to Amendment

15 In response to Applicant's amended Abstract, the Examiner finds the amendment
directly addresses the previous identified inconsistencies, and therefore, the objection to
the Abstract is hereby withdrawn.

In response to Applicant's amended claim 1, previously rejected under 35 U.S.C.
112, second paragraph, the Examiner find the amendments removing the terms "large"
20 and "substantial" to cure the indefinite status, and therefore, the 35 U.S.C. §112, second
paragraph, rejection to claim 1 is hereby withdrawn.

Response to Arguments

Applicant's arguments with respect to claims 1-4, 11, and 17-18 have been considered but are moot in view of the new ground(s) of rejection.

5

Claim Rejections - 35 USC § 112

Claims 1-4, 11, and 17-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1 and 17 include the amended limitation relating to staggering of an operation start and a count start operation (Response - lines 10-11 of claim 1 and lines 23-24 of claim 13.) The Specification was not found to include support for these limitations.

15 Additionally, claims 1-4 and 11 are also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claim 1 includes reference to multiple counters (Response - line 9 of claim 1.) The
20 Specification was not found to include support for this limitation.

Claims 2-4, 11, and 18, by virtue of their dependence upon independent claims 1 and 17, respectively, contain and includes all associated limitations. Therefore, these

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claims are also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Applicant is also reminded that the prompt development of a clear issue requires that the replies of the applicant meet the objections to and rejections of the claims.

- 5 Applicant should also specifically point out the support for any amendments made to the disclosure. See MPEP § 2163.06 and § 714.02.

For the purposes of examination on the merits of the claims, the claims will be interpreted to be read without consideration of the 35 U.S.C. 112 rejected limitations; which for claim 1 is "each include a counter for counting a clock signal, wherein an
10 operation start of the voltage-time conversion circuits and a start of count operation of the counter are staggered", and for claim 17 is "an operation start of the voltage-time conversion circuit and a start of count operation of the counter are staggered."

Claim Rejections - 35 USC § 102

- 15 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- 20 (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- 25 **Claim 1-4 and 11** are rejected under 35 U.S.C. 102(e) as being anticipated by Hou (US 6,578,145.)

Regarding claim 1, Hou discloses a data conversion/output apparatus comprising sensors (fig. 3 indicators 302-n), voltage-time conversion circuits which are arranged adjacent to said respective sensors and change output levels upon the lapse of times corresponding to output voltage values from said sensors after a conversion operation start point in order to convert voltage outputs of said sensors into times (fig. 3 indicators 312-n, col. 6 lines 41-44), and sensed data generation circuits for outputting, as digital data, lapse times until the output levels of said voltage-time conversion circuits change after a conversion start point (fig. 3 indicator 314-n, col. 6 lines 45-58.)

Regarding claim 2, Hou discloses all of the limitations of claim 2 (see the 102(b) rejection to claim 1 supra), including disclosing a data conversion/output apparatus further comprising control means for sequentially supplying outputs from said voltage-time conversion circuits to said sensed data generation circuits (col. 5 lines 30-44.)

Regarding claim 3, Hou discloses all of the limitations of claim 4 (see the 102(b) rejection to claim 1 supra), including wherein said sensors are arranged in a matrix together with said corresponding voltage-time conversion circuits to constitute respective pixels (fig. 3, in which indicator 302 and indicator 312 can be interpreted as one unit), and said data conversion/output apparatus further comprises group selection means for selecting, from the pixels in a column direction, pixels which are aligned in a row direction and connected to one of said sensed data generation circuits (fig. 3., col. 5 lines 30-44.)

Regarding claim 4, Hou discloses all of the limitations of claim 4 (see the 102(b) rejection to claim 3 supra), including wherein said sensed data generation circuit includes a latch circuit for latching a count value after the conversion operation start point of said counter upon reception of an output from the voltage-time conversion circuit of each group-selected pixel (fig. 3A indicator 314-n, col. 6 lines 45-51.)

Regarding claim 11, Hou discloses all of the limitations of claim 11 (see the 102(b) rejection to claim 3 supra), including wherein said sensed data generation circuit includes a counter for counting a clock signal (fig. 3A indicator 311), and a latch circuit for latching a count value of said counter after a point offset from the conversion operation start point upon reception of an output from said voltage-time conversion circuit of each group-selected pixel (fig. 3A indicator 314-n, col. 7 line 17 – col. 8 line 15.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being obvious over Simoni et al. (A Digital Camera for Machine Vision”; employing Applicant’s disclosure of this prior art as provided in relation to Figure 12 of Specification) in view of Hou (US 6,587,145.)

Regarding claim 17, Simoni, employing Applicant's disclosure of this prior art as provided in relation to Figure 12 of Specification, discloses a data conversion/output apparatus including a column decoder for selecting at once a plurality of pixels aligned on an arbitrary column from pixels arrayed in a matrix (fig. 12 indicator 72), a plurality of data buses each commonly connected to a plurality of pixels aligned on each row out of the pixels (fig. 12 indicator 74), a counter for sequentially outputting count values in accordance with internal count operation (fig. 12 indicator 76), a plurality of latch circuits which are arranged on respective rows and latch the count values from said counter in accordance with level changes of said data buses corresponding to the respective rows (fig. 12 indicator 77), a row decoder for selecting a row having a desired pixel out of the pixels selected by said column decoder (fig. 12 indicator 73), and a plurality of row switches which are arranged on the respective rows and output as sensed data of desired pixels the count values latched by said latch circuits corresponding to the respective rows (fig. 12 indicator 75), wherein each of the pixels has a sensor for outputting a detection result as an output voltage value (fig. 12 indicator 73), and a column switch for outputting in accordance with selection of a pixel by said row decoder an output to a data bus connected to the pixel (Specification – fig. 12 indicator 63.) However, Simoni does not disclose a voltage-time conversion circuit for changing an output level upon the lapse of time corresponding to an output voltage value from said sensor after a predetermined conversion operation start point.

Nevertheless, Hou discloses a data conversion/output apparatus that includes a voltage-time conversion circuit that changes an output level upon the lapse of time

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corresponding to an output voltage value from said sensor after a predetermined conversion operation start point (col. 3 line 4 col. 4 line 52.) It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the voltage-time conversion circuit of the data conversion/output apparatus as taught by Hou with the data conversion/output apparatus as taught by Simoni, in order to produce signals of higher fidelity, as well as to accomplish A/D conversion within a pixel without requiring each pixel to have the extra circuitry and costs associated with conventional A/D circuits ('030 – col. 1 lines 33-62.)

Regarding claim 18, Simoni and Hou disclose all of the limitations of claim 17 (see the

103(a) rejection to claim 17 supra), including disclosing a data conversion/output apparatus further comprising a plurality of output-side latch circuits which are interposed between said latch circuits and said row switches for the respective rows, latch outputs from said latch circuits in accordance with a predetermined data reception signal, and output the outputs to said switches (Figure 12 of Specification, indicator 77.)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary C. Vieaux whose telephone number is 571-272-7318. The examiner can normally be reached on Monday - Friday, 8:00am - 4:00pm.


10 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen T. Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for
15 published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a
20 USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gary C. Vieaux
Examiner
Art Unit 2622

Gcv2

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NGOC-YEN VU
SUPERVISORY PATENT EXAMINER